The existence of comprehensive specific information.

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1. The Theorems.

There is one notion that needs further delineation. The GGU-model is based originally upon an inclusive standard language L. This language L models all of the modes that humans and machines use to represent "sensory-information." Certain aspects of physical science such as quantum dynamics and classical physics use continuity over the real $\mathbb{R}$ or complex $\mathcal{C}$ numbers. However, unless one uses the notion of an "extended language" (Herrmann, 1993, pp: 81-82), where the cardinality of L is that of $\mathbb{R}$, it is not possible to use the original notions for a developmental paradigm to represent all of the proposed members. Since rational numbers are denumerable and the natural order for the rational numbers Q is a simple dense order, then all real number results, such as continuity, can be considered as but an approximating model for members of a development paradigm index by the rational numbers. However, this additional density feature was not included orignially in the technical aspects of the GGU-model.

What has been done in the most recent article (Herrmann, 2006), is that rational numbers are used to index the members of a developmental paradigm. But, the indexing set is not dense with respect to Q's natural order. Notice, however, that K, in this article, can be any nonzero member of $\mathbb{N}$, the set of natural numbers. It should be self-evident that for large K the primitive time intervals themselves go somewhat beyond what is considered as all possible human or machine sensory-information as represented by general descriptions, unless one uses but repeated descriptions. However, technically, L still contains enough words to "represent" any description that is assumed to exist even if not produce by human senses or machines. Indeed, this is the process used in subatomic physics and early history cosmology. Thus, the notion of standard sensory-information is generalized somewhat. Further, one can also allow any model that uses $\mathbb{R}$ or $\mathcal{C}$, which have a greater cardinality than $\mathbb{N}$ and Q, as but approximating devices for each member of these new types of developmental paradigms. These approximating notions need not hold for the nonstandard portions of the GGU-model.

For the GGU-model, it is better to assume that the Grundlegen Structure $\mathcal{M}$ and $\mathcal{M}_1$, the Extended Grundlegen Structure (Herrmann, 1993), are polysaturated (Stroyan and Luxemburg, 1976). Except for the next to last paragraph of this article, only the embedded objects are considered. For the GGU-model, as in biology, specific information represented by each member $\mathbf{F}_j$ of a developmental paradigm, $\mathbf{d} = \{\mathbf{F}_i \mid i \in \mathbb{N}\}$, is associated with a set of instructions $\mathbf{r}_j$, which details the exact "number" of ultrasubparticles and the number and type of combinations required to obtain the physical realization of $\mathbf{F}_j$. These combinations also yield the coded non-numerical characteristics for entities described in $\mathbf{F}_j$ that are obtained by extending the quantum-state codes modeled in Herrmann (1999). Thus far, each set of instructions applies to a specific member of $\mathbf{d}$ and it also carries the primitive time identifier. For any nonempty set $\mathbf{B}$, let $\mathcal{F}(\mathbf{B})$ denote the set of all non-empty finite subsets of $\mathbf{B}$. For any $\mathbf{A} \in \mathcal{F}(\mathbf{d})$, that is considered as ordered in primitive time, there exists a set $\mathbf{r_A}$ of ordered instructions. Let the set $\mathbf{I}'$ be the set of all instructions. Hence, there exists an injection $\mathbf{R}\colon \mathcal{F}(\mathbf{d}) \to \mathcal{F}(\mathbf{I}')$ that relates each member of $\mathcal{F}(\mathbf{d})$ to a set of instructions.

Thus, by *-transfer, for each $H \in {}^*\mathcal{F}({}^*\mathbf{d})$, there is a *ordered set $r_H \in {}^*\mathbf{I}'$ such that ${}^*\mathbf{R}(H) = r_H$. From Herrmann (1993), for any ultraword w such that $\mathbf{d} \subset {}^*\mathbf{S}(\{w\})$, there is a hyperfinite $d_1' \in ({}^*\mathcal{F})({}^*\mathbf{d})$, such that $\mathbf{d} \subset d_1' \subset {}^*\mathbf{S}(\{w\})$. Therefore, there is hyperfinite *ordered set of instructions ${}^*\mathbf{R}(d_1') = r_{d_1'} \subset {}^*\mathbf{I}'$. This set of instructions corresponds to comprehensive specific information.

(Recall that for $\mathbf{F} \in \mathbf{d}$, then ${}^*\{\mathbf{F}\} = \{\mathbf{F}\}$.) Notice that by ordered juxtaposition for each $\mathbf{B} \in \mathcal{F}(I')$ there exists a singleton set $\{\mathbf{r}_\mathbf{B}'\} \subset L$ such that $\{\mathbf{r}_\mathbf{B}'\}$ is equivalent to $\mathbf{B}$. This can be applied to the above and, hence, we can restrict $\mathbf{R}$ to these singleton subsets of $\mathbf{d}$. Thus, H can be replaced by a single *ordered instruction that is hyperfinitely long and a member of ${}^*\mathbf{I}'$. In what follows, consider $\mathbf{R}'$ as the injection that is the restriction of $\mathbf{R}$ to singleton subsets of $\mathbf{d}$. There is an intuitively defined operator $\mathbf{G}$ that applies to each $\mathbf{R}'(\{\mathbf{F}\}) = \{\mathbf{r}_\mathbf{F}'\}$ as $\mathbf{F}$ varies over $\mathbf{d}$. The yields the proper combination of ultrasubpartricles. In this case, $\mathbf{G}$ follows the instructions and combines ultrasubpartilces together in such a manner that when st is applied each member of d is realized. Let $\mathbf{F} \in \mathbf{d}$. Then ${}^*\mathbf{R}'(\{\mathbf{F}\}) = \{\mathbf{r}_\mathbf{F}'\} \subset \mathbf{I}'$. The intuitively transferred operator ${}^*\mathbf{G}$ is applied to each such $\mathbf{r}_\mathbf{F}'$. The result ${}^*\mathbf{G}(\mathbf{r}_\mathbf{F}')$ is the properly combined collect of subparticles. Hence, in this case, when st is applied to ${}^*\mathbf{G}(\mathbf{r}_\mathbf{F}')$ the result is the physically realized F. For $F \in d_1' - \mathbf{d}$, ${}^*\mathbf{G}(r_F)$ yields combinations of subpartilces. But, when st is applied to ${}^*\mathbf{G}(r_F)$, it has no effect. Note that the combining process can be modeled by various transformations (Herrmann (1999)). Obviously, the above processes are intelligently designed.

There is a finitary consequence operator that relates members in d to an instruction in I'. Of course, this holds for the embedded objects as denoted by boldface symbols. Consider, for each $\mathrm{F_i} \in \mathrm{d} = \{\mathrm{F_i} \mid \mathrm{i} \in \mathbb{N}\}$, the finitary logic-system $\{(\mathrm{F_i}, \mathrm{r}'_{\mathrm{F_i}}) \mid \mathrm{F_i} \in \mathrm{d})\}$. This logic-system generates a finite consequence operator IN

(Herrmann, 2001), where ${}^*\mathbf{IN}$ generates an equivalent higher-intelligence *logic-system (Herrmann, R. A, (2006). The operator ${}^*\mathbf{IN}$ is defined on all (internal) subsets of ${}^*\mathbf{L}$. However, for any word $\mathrm{w} \in \mathrm{L} - \mathrm{d}$, $\mathrm{IN}(\{\mathrm{w}\}) = \{\mathrm{w}\}$. Further, all that is required is that ${}^*\mathbf{G}(F)$ be known for each $F \in d_1'$. Thus, for applications ${}^*\mathbf{IN}$ need only be considered as restricted to singleton subsets of hyperfinite d_1'.

Hence, not only is this way of representing specific information intelligently designed, but, in general, the association of equivalent descriptions or pure descriptions (i.e. members of $d_1' - \mathbf{d}$) with equivalent instructions has an higher-intelligence signature.

References

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